CLAIMS:

1. A method of determining a best-case response time of a first periodic task, the method comprising:

a first step of determining that the first periodic task has a lower priority than a higher priority of a second periodic task,

characterized in that the method further comprises:

a second step of determining that the best-case response time of the first periodic task is substantially equal to the difference between a start of the first periodic task and a completion of the first periodic task, the start being right after a release of the first periodic task and the completion coinciding with a release of the second periodic task.

2. A method of determining a best-case response time of a first periodic task according to claim 1, wherein BR_i denotes the best-case response time of the first periodic task, BR_i being substantially equal to the largest value that satisfies:

$$BC_i + \sum_{j \in hp(i)} \left(\left\lceil \frac{BR_i}{T_j} \right\rceil - 1 \right) BC_j$$

wherein BC_i denotes a best-case computation time of the first periodic task τ_i, $hp(i)$ denotes a set of tasks with a higher priority than the lower priority, T_j denotes a period of activation of a task j of $hp(i)$.

3. A method of determining a best-case response time of a first periodic task according to claim 2, wherein WR_i denotes a worst-case response time of the first periodic task τ_i and the best-case response time BR_i can be found by an iterative procedure of k iterations, where $k = 0,1, \ldots$comprising:

$$BR_i(0) = WR_i$$

$$BR_i(k+1) = BC_i + \sum_{j \in hp(i)} \left(\left\lceil \frac{BR_i(k)}{T_j} \right\rceil - 1 \right) BC_j$$

wherein the iterative procedure terminates when the same value is found for two successive iterations of k.

4. A method of determining a best-case response time of a first periodic task according to claim 3, wherein the worst-case response time of the first periodic task is based upon a worst-case computation time of the first periodic task.

5. A method of determining a best-case response time of a first periodic task according to claim 3, wherein the worst-case response time of the first periodic task is based upon a best-case computation time of the first periodic task.

6. A method of determining a best-case response time of a first periodic task according to claim 3, wherein RJ_i denotes a release jitter of the first periodic task τ_i, the release jitter being a variation in the release of the first periodic task and the release jitter having a negative contribution to the best-case response time:

$$BR_i(0) = WR_i$$

$$BR_i(k+1) = BC_i + \sum_{j \in hp(i)} \left(\left\lceil \frac{BR_i(k) - RJ_j}{T_j} \right\rceil - 1 \right)^+ BC_j$$

wherein x^+ denotes the maximum of 0 and x.

7. A system for determining a best-case response time of a first periodic task, the system comprising:

determination means conceived to determine that the first periodic task has a lower priority than a higher priority of a second periodic task,

characterized in that the system further comprises:

response time means conceived to determine that the best-case response time of the first periodic task is substantially equal to the difference between a start of the first periodic task right after its release and a completion of the first periodic task that coincides with a release of the second periodic task.

8. A system (800) of determining a best-case response time of a first periodic task according to claim 7, the system further comprising first calculation means (802) conceived to calculate the best-case response time denoted by BR_i according to the following formula:

$$BR_i = BC_i + \sum_{j \in hp(i)} \left(\left\lceil \frac{BR_i}{T_j} \right\rceil - 1 \right) BC_j$$

wherein BC_i denotes a best-case computation time of the first periodic task τ_i, $hp(i)$ denotes a set of tasks with a higher priority than the priority of the first periodic task, T_j denotes a period of activation of a task j of $hp(i)$, and BR_i denotes the best-case response time of the first periodic task.

9. A system (800) of determining a best-case response time of a first periodic task according to claim 8, the system further comprising second calculation means (804) conceived to calculate the best-case response time denoted by BR_i according to the following iterative procedure of k iterations, where $k = 0,1,\ldots$:

$$BR_i(0) = WR_i$$

$$BR_i(k+1) = BC_i + \sum_{j \in hp(i)} \left(\left\lceil \frac{BR_i(k)}{T_j} \right\rceil - 1 \right) BC_j$$

wherein WR_i denotes a worst-case response time of the first periodic task τ_i and the iterative procedure terminates when the same value is found for two successive iterations of k.

10. A system (800) of determining a best-case response time of a first periodic task according to claim 7, the system further comprising third calculation means (806) conceived to calculate the best-case response time denoted by BR_i corrected for a release jitter, the release jitter being a variation in the release of the first periodic task:

$$BR_i(0) = WR_i$$

$$BR_i(k+1) = BC_i + \sum_{j \in hp(i)} \left(\left\lceil \frac{BR_i(k) - RJ_j}{T_j} \right\rceil - 1 \right)^+ BC_j$$

wherein RJ_i denotes the release jitter of the first periodic task τ_i, and x^+ denotes the maximum of 0 and x.

11. A computer program product arranged to perform the method according to any of the claims 1 to 6.

12. A storage device (812) comprising a computer program product according to claim 11.

13. A television set (910) comprising a system according to any of the claims 7 to 10.

14. A set-top box (1002) comprising a system according to any of the claims 7 to 10.